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Rhantus procul sp. nov., a new diving beetle from Central Sulawesi – sister to a species from Sri Lanka (Coleoptera, Dytiscidae, Colymbetinae)

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https://zoobank.org/4E1D60A3-9DCE-454F-AAC0-EFB4713F20CC

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Abstract

The diving beetle *Rhantus procul* **sp. nov.** is described from around 2,000 m a.s.l. at Mount Pompangeo in Central Sulawesi, Indonesia. Besides *Rhantus suturalis* (W.S. Macleay, 1825) it is the second species of the genus recorded from Sulawesi. Altogether nine species of the genus are now known from Indonesia. The median lobe of the new species is very similar to *Rhantus interclusus* (Walker, 1858), endemic to the highlands of Sri Lanka, but the species can be easily distinguished by body size, coloration of the pronotum and the slightly different curvature of median lobe.

Key Words

Cloud forest, Indonesia, Mount Pompangeo, new species, Predaceous water beetle

Introduction

Diving beetles of the genus *Rhantus* Dejean, 1833 are typically found in shallow, standing waters with rich emergent plant life. These reasonably large Dytiscidae beetles measure between 8 and 14 mm in length. Few species inhabit streams and smaller creeks. A total of 93 species has been described worldwide (Nilsson and Hájek 2025). The vast majority of tropical species occur at higher elevations where conditions are cooler, as *Rhantus* species avoid the wet tropical climate (Morinière et al. 2016). Several recent publications have addressed the Indonesian fauna, including revisions and species descriptions by Balke (1993, 1998, 2001) and Balke et al. (2017). This paper describes a new species found by the first and second authors during an expedition to the higher mountain ranges in Central Sulawesi.

Materials and methods

Specimens for this study were collected by hand with aquarium nets during an expedition to Mt. Pompangeo in Central Sulawesi Province, Indonesia. The specimens were deposited in the Museum Zoologicum Bogoriense (MZB), Bogor, Indonesia as well as the Zoologische Staatsammlung München (ZSM), Munich, Germany.

The description of morphological characters follows our previous work on *Rhantus* (e.g. Balke et al. 2019). A Leica M205C dissecting microscope with magnifications ranging from 10 to 160× was used to examine the beetles. Type material label data are referenced in quotation marks. We used a Leica M205C stereomicroscope to gather measurements. The terminology denoting the orientation of the genitalia follows Miller and Nilsson (2003). The median lobe of the aedeagus and the param-

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eres were disarticulated and dry mounted alongside the specimen on the same glueboard.

Images were taken with a Canon EOS R camera. We used Canon MPE65 macro lens (habitus) and a 10× Mitutoya ELWD lens (genitalia). The latter was attached to a Carl Zeiss Jena Sonnar 3.5/135 MC, used as a focus lens. Illumination was provided by three LED segments SN-1 from Stonemaster (https://www.stonemaster-onlineshop.de). Image stacks were generated with the Stackmaster macro rail (Stonemaster), and images were then assembled using Helicon Focus 4.77 on a MacPro with a Radeon 6800 XT GPU.

Results

Checklist of the species of genus *Rhantus* from Indonesia, including the new species:

Rhantus anggi Balke, 2001 – West Papua, Pegunungan Arfak Regency, Anggi
R. dani Balke, 2001 – West Papua, Jayawijaya Regency, Baliem Valley, Wamena
R. ekari Balke & Hendrich, 1992 – West Papua, Paniai Regency, Enarotali
R. kakapupu Balke, 2001 – West Papua, Paniai Regency, Itouda, Kamo Valley
R. leuser Balke, 1998 – Sumatra, Acek, Gunung Leuser National Park
***R. procul* sp. nov.** – Central Sulawesi, Mount Pompangeo
R. riedeli Balke, 2001: West Papua, Pegunungan Arfak Regency, Anggi
R. supranubicus Balke, 2001 – West Papua, Jayawijaya Regency, Mount Wilhelmina, Kali Oue Valley
R. suturalis (W.S. Macleay, 1825) – Palearctic, Oriental and Australasian realms

Taxonomy

Rhantus procul sp. nov.

https://zoobank.org/E8902C29-BFC0-4B9F-A090-9E5EE039D256

Fig. 1A–F

Type locality. Tojo-Una-Una [1°35'4.41"S, 120°55'28.10"E], Sulteng, Mt. Pompangeo, Central Sulawesi, Indonesia.

Type material. ***Holotype*** • Male: "Indonesia, Sulawesi, Sulteng, Tojo Una-Una, Mt. Pompangeo, from 1°35'4.41"S, 120°55'28.10"E to 1°35'9.22"S, 120°55'30.44"E, 1900 m, 28.II.2020-Track 2 (WP 42-49) leg. Narakusumo"; "HOLOTYPE *Rhantus procul* sp. nov. Narakusumo, Fahri, Hendrich, Balke des. 2025" [red printed label] (MZB).

Paratypes • 2 males and 1 female, same data as holotype (MZB, ZSM) • 1 female, "Indonesia, Sulawesi, Sulteng, Tojo Una-Una, Mt. Pompangeo, from 1°35'11.81"S, 120°55'39.50"E to 1°35'7.59"S, 120°55'37.34"E, 2000m, 1.III.2020-Track 3 (WP 71-81) leg. Narakusumo" (MZB). All specimens bear our red printed paratype labels.

Description. Holotype. A medium-sized *Rhantus* species, total length of holotype 10.3 mm, length without head 9.5 mm, greatest width 5.2 mm.

Colour: Head black, with contrasting orange marks as in Fig. 1A. Pronotum yellow-orange, with a basal and discal patch black. Elytron orange, with black irrorations. Body appendages, epipleuron and hind margins of abdominal sternites dark ferruginous, rest of venter black.

Surface sculpture: Head with irregular meshes and dense, fine punctation, no microreticulation visible (Fig. 1B); clypeus with double punctation only. Pronotum with irregular meshes and dense, distinct double punctation, disc with double punctation only; no microreticulation visible on pronotum (Fig. 1B). Elytron with three longitudinal rows of deeper punctures, distinct, irregular polygonal meshes and fine punctation; with distinct though sometimes faint microreticulation within the meshes.

Structures: Pronotum with broad and conspicuous lateral bead, not reaching anterior angle (Fig. 1A, B). Lateral wings of metaventrite triangular; hind wings fully developed. Last ventrite rounded apically.

Tarsal characters: Protarsal claws (Fig. 1C) of almost equal length, both claws slightly shorter than tarsomere V. Claws slender and evenly curved and with no particular modification (e. g. not dentate or with irregular curvature).

Mesotarsal claws of equal length, evenly curved, shorter than fifth protarsomere. Pro- and mesotarsomeres 1–3 not dilated laterally, with four transverse rows of stalked suction discs ventrally. Number of discs per row (tarsomere on which row occurs given in parentheses): pro: 7(I)/6(I)/6(II)/5(III); meso: 7(I)/7(I)/7(II)/5(III).

Genital structure: Median lobe of aedeagus (Fig. 1E, D), longish curvature in lateral view; parameres with fringe of yellow hairs, apically acute, not trumpet shaped (Fig. 1F).

Variation. Body length varies from 10.2–10.8 mm. The discal dark spot on pronotum can be slightly more extended than in the holotype (Fig. 1A), the same is true for the basal dark spot. Both can be approaching but do not connect. Females, color as in male, dorsal surface matt; elytral sculpture with stronger microreticulation than in male. Tarsomere without ventral stalked suction discs.

Etymology. The specific epithet "procul" is a Latin adverb meaning "far away" or "from afar". The name is treated here as a noun in apposition and, in accordance with article 34.2.1 of the ICZN code, is thus considered indeclinable. The name refers to the large geographical distance between the type locality of the new species and *Rhantus interclusus* (Walker, 1858) from Sri Lanka, which is closest in terms of genital morphology.

Diagnosis. A species well delineated from all other Indonesian *Rhantus* by the form of the median lobe in lateral view (Fig. 1E, D). Its flattened basic shape is essentially the same as in *R. interclusus* (Fig. 1H), described from the Central Mountain Ranges of Sri Lanka and endemic to that island. Both species can be easily separated by the coloration of their pronotums (Fig. 1A, G). Furthermore, *R. interclusus* is slightly larger and broader than *R. procul* sp. nov., and has the slightly different curvature of the median lobe.

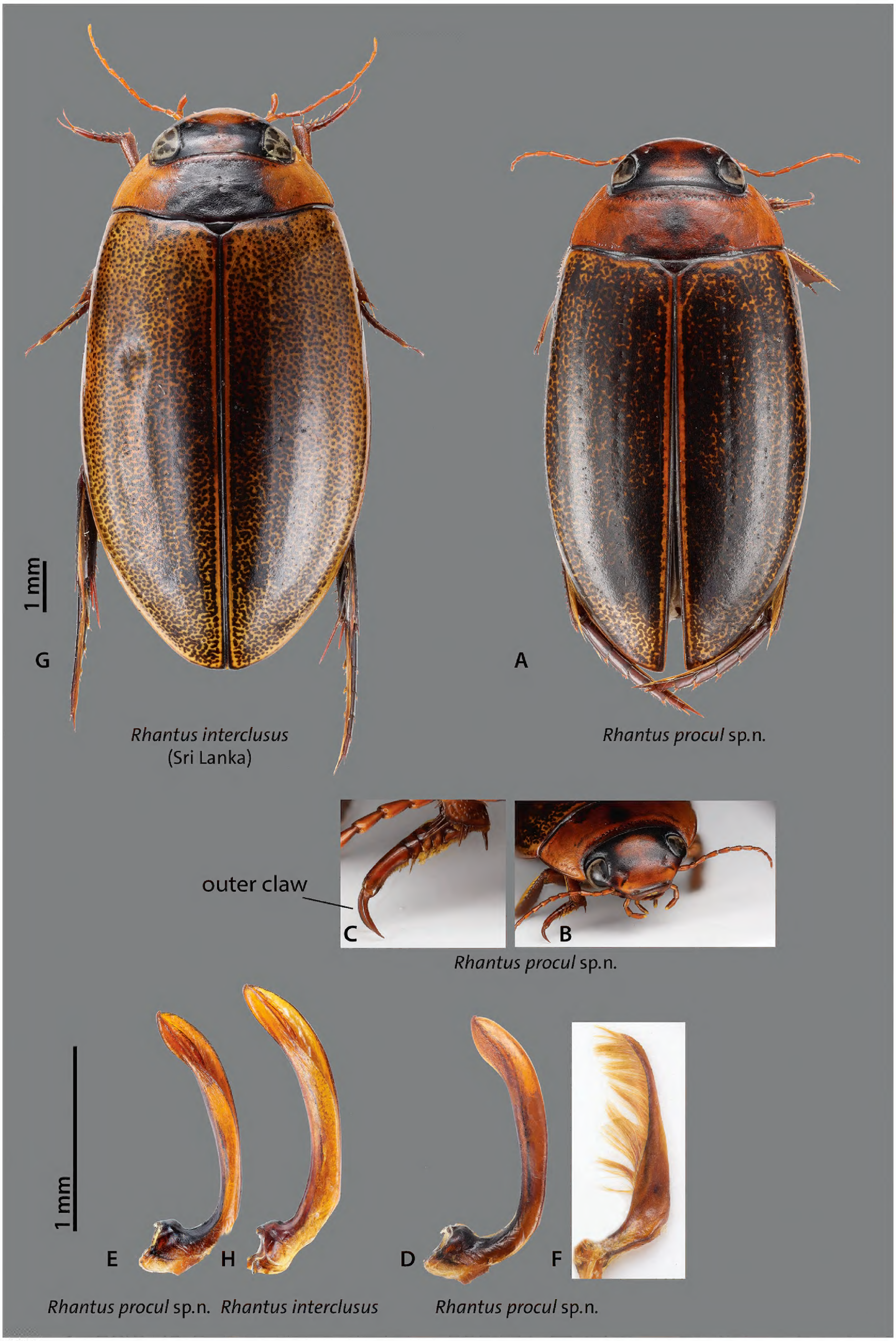

Figure 1. Morphology of *Rhantus procul* sp. nov., holotype (**A–F**) and *R. interclusus* (**G, H**): **A, G.** Habitus; **B.** Head and pronotum; **C.** Protarsus; **D, E, H.** Median lobe in lateral view.

Females of *R. procul* sp. nov. and *R. interclusus* can also be differentiated from one another based on body size and dorsal coloration.

The only other known species of *Rhantus* occurring in Sulawesi is *R. suturalis* (Fig. 2A), whose median lobe is tubular, not flattened (Fig. 2B). The male pro- and mesotarsomeres 1–3 in *R. suturalis* are weakly dilated, laterally compressed; protarsal claws short, anterior claw arcuate subbasally, about 1 ½ times as long as posterior claw which is very narrow and strongly arcuate in distal half (Fig. 2C).

The shape of the parameres of *R. suturalis* is essentially a generic "*Rhantus*-shape". The lack of slightly trumpet-shaped, presumably suction setae is supposedly the ancestral state.

Distribution. Only known from the type locality in Central Sulawesi, Indonesia (Fig. 3).

Habitat. (Fig. 4). *Rhantus procul* sp. nov. was collected from small, shallow forest streams at ca. 1,900–2,000 m a.s.l. elevation on Mt. Pompangeo. The streams had sandy and gravelly substrates, clear water, and were shaded by dense montane rainforest with abundant trees with ferns, mosses and epiphytic plants. The surrounding vegetation created a cool and humid microclimate typical of high-elevation tropical forest.

Additional material studied

***Rhantus suturalis* (W.S. Macleay, 1825)**

Type material. • 1 ex., "Sulawesi-Süd Kanse-Apia, NÖ Malino, 30.iv.1992, leg. M. Jäch" (NMW) • 2 exs., "SW Celebes, 1100 m Mt. Lompobatang area, Malino, 2.8.–10.VI.1982, MA Lieftinck" (NCB Naturalis).

Note. This is the only other species of *Rhantus* known from Sulawesi.

Distribution. Widespread in the Palaearctic, Oriental and Australasian realms. In Indonesia, it is known from Sumatra, Sulawesi, Lombok, Flores, Timor, and the Papuan region.

Discussion

The discovery of a new, apparently highly endemic species of *Rhantus* at Mount Pompangeo in the highlands of Central Sulawesi is remarkable because the terrain in this area is completely devoid of high plateaus and larger swamps. The montane forest of Mount Pompangeo (2,590 m a.s.l.) was heavily logged from around 1970s

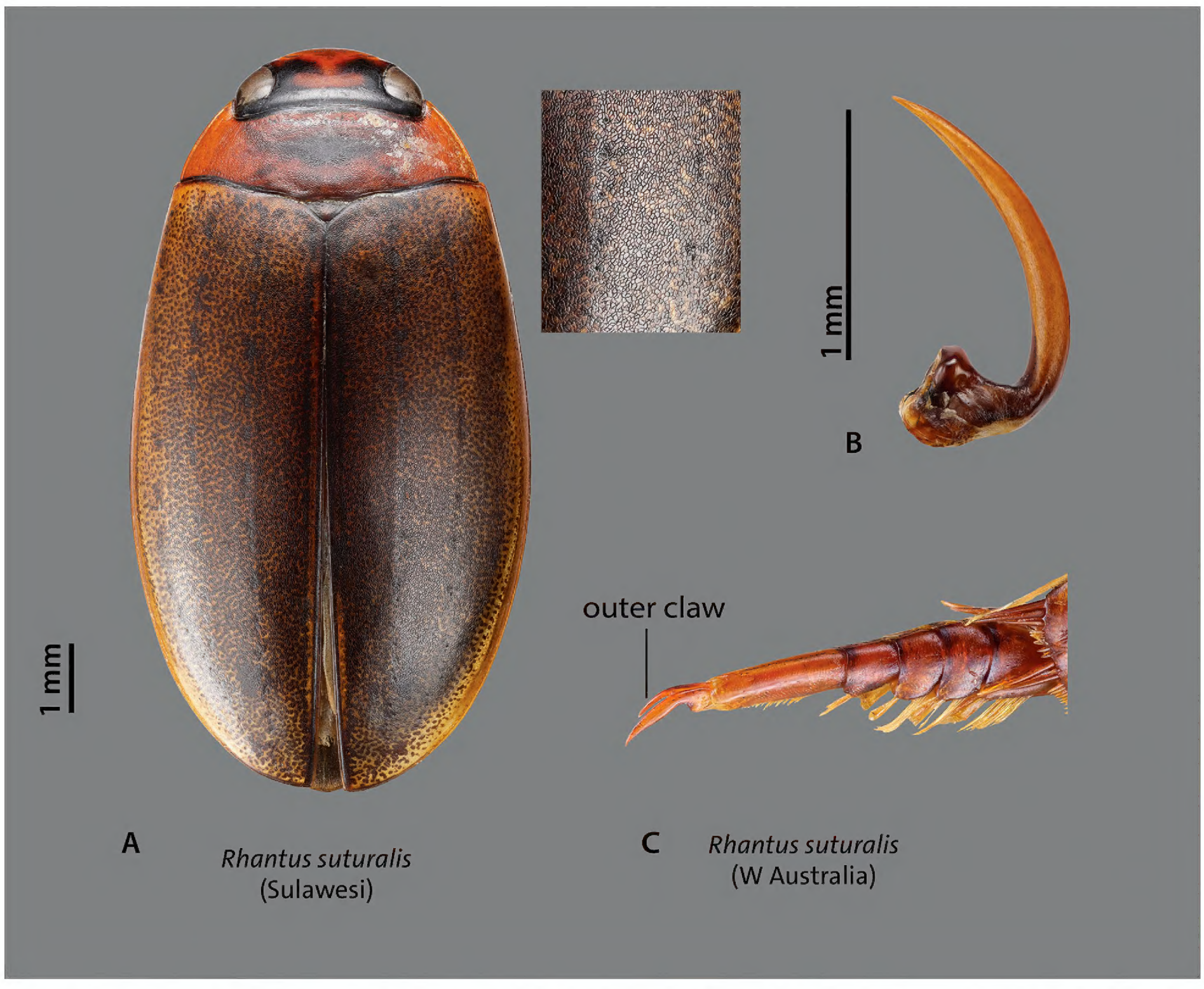

Figure 2. Morphology of *Rhantus suturalis* (female) and sculpture of elytra (**A**); Median lobe of *R. suturalis*, lateral view (**B**); Male protarsus with claws of *R. suturalis*, lateral view (**C**).

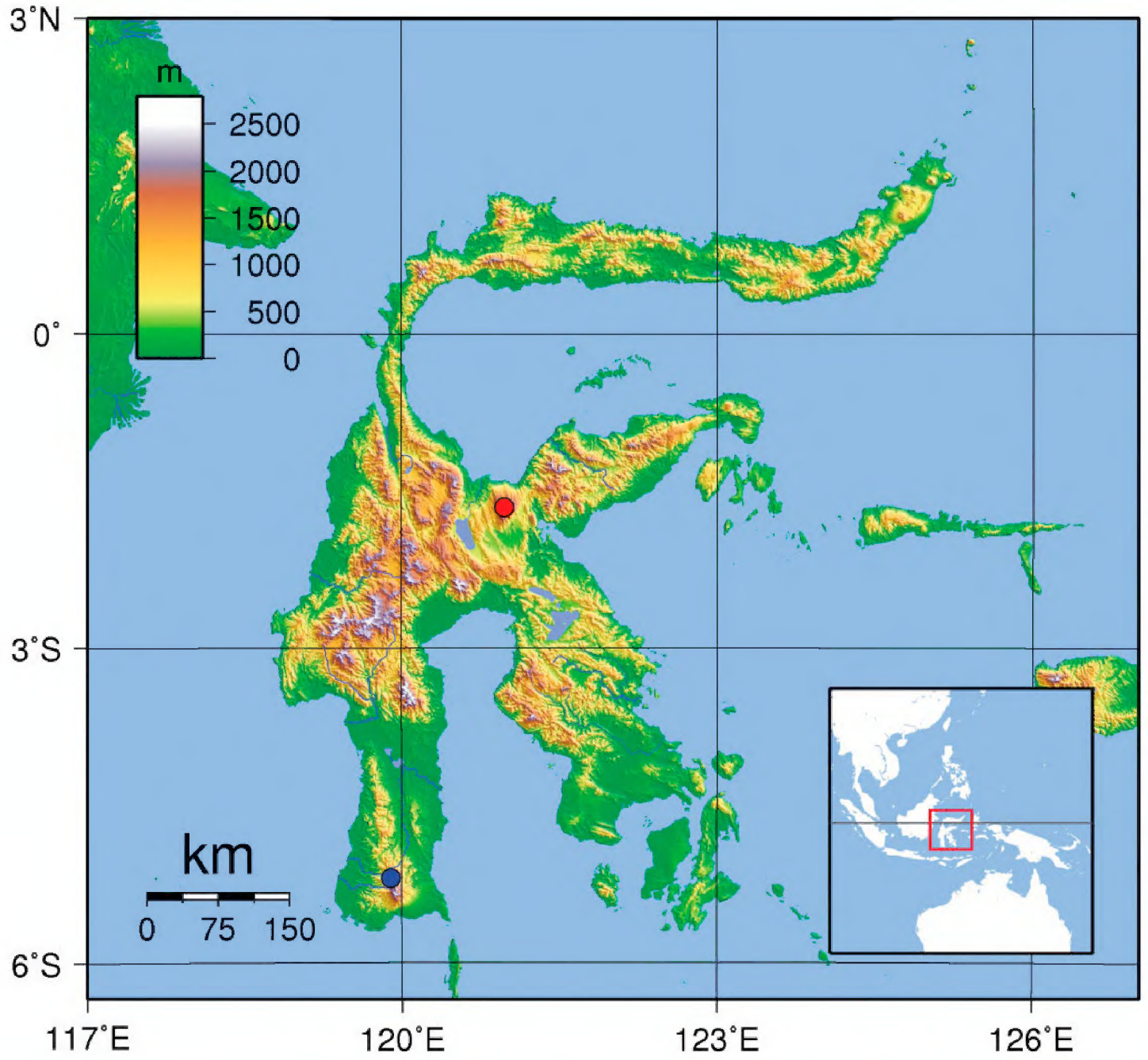

Figure 3. Distribution map of *Rhantus* species in Sulawesi. Type locality of *R. procul* sp. nov. (red dot), collecting site of *R. suturalis* (blue dot). The map is based on File:Sulawesi Topography.png - Wikimedia Commons, Sadalmelik, CC BY-SA 3.0 <https://creativecommons.org/licenses/by-sa/3.0>, via Wikimedia Commons.

Figure 4. Habitat of *Rhantus procul* sp. nov. at Mount Pompangeo, Central Sulawesi (Photos: Pramesa Narakusumo).

until the 2000s, after which large-scale logging ceased, and local villagers now mainly harvest pine tree resin from *Agathis dammara* (Lamb.) Poir. At higher elevations near the summit, forest patches are occasionally affected by fire. The patchy rainforest where *Rhantus procul* sp. nov. was found appears to function as a refuge space for endemic species (Narakusumo and Riedel 2021) and highlights the importance of protecting this remaining vulnerable habitat.

The shape of the male median lobe of this new species is surprisingly similar to that of the Sri Lankan endemic *Rhantus interclusus*. No other known *Rhantus* species worldwide has a median lobe with this flattened shape. A principally tubular shape (see Fig. 2B, *R. suturalis*) is present in all other known species of *Rhantus* and related genera as well and deemed the ancestral shape.

This distribution pattern is particularly striking, considering the two islands are more than 4,000 km apart. This discovery sheds light on the complex biogeographic history of Indonesia and the remarkable biodiversity of Sulawesi. We are not aware of any other case of an apparent sister-species relationship between species from Sulawesi and Sri Lanka.

As research into the aquatic insects of Sulawesi's highlands is still in its early stages, it is likely that more undescribed species of diving beetle will be discovered. Future surveys of other remote, high-altitude areas of Sulawesi remain crucial for understanding the island's aquatic beetle fauna.

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